

Amendments to the claims
Complete listing of the claims

1. (Currently Amended) A balloon for use in a balloon catheter including a tubing, said balloon having a high strength for resisting bursting during over inflation, and said balloon comprising a blended nano-composite reinforced polymer matrix consisting essentially of a polymer selected from nylon 12 or PET and a nano composite selected from carbon nano-tubes, ~~a nano-clay~~ or nano-ceramic fibers together with a ~~small amount of~~ lubricant to aid dispersion of the nano composite during blending of the matrix, said polymer and nano composite matrix ~~having been~~ being formed by controlling the volume or weight percent of nano composite in the matrix relative to the polymer such that the nano composite is between 0.20% and 20% by weight of the matrix and the polymer is between 80 % and 99.80% of the matrix, by controlling the "wetting" of the nano composite in the matrix; and by controlling the orientation of the nano composite tubes or nano ceramic fibers within the matrix such that the nano-tubes or nano ceramic fibers are oriented to be generally parallel with an elongate axis of said balloon.

2. (Cancelled) ~~The balloon of claim 1 wherein said polymer is nylon 12 or PET.~~

3. (Currently Amended) The balloon of claim 1 being fused to one end of ~~the~~ a tubing of ~~the~~ a balloon catheter.

4. (Currently Amended) The balloon ~~catheter~~ of claim 3 wherein said balloon comprises between 99.75 and 90.00% by weight polymer and between 0.25 and 10 by weight carbon nano-tubes.

5. (Currently Amended) The balloon ~~catheter~~ of claim 4 wherein said balloon comprises approximately 3% by weight carbon nano-tubes.

6. (Cancelled) ~~The balloon of claim 3 wherein said polymer is nylon 12 or PET.~~

7. (Previously Presented) The balloon of claim 3 wherein said nano composite is a nano-ceramic fiber.

8. (Currently Amended) The balloon catheter of claim 7 wherein said balloon comprises between 99.75 and 90.00% by weight polymer and between 0.025 and 10.00% by weight nano-ceramic fibers.

9. (Previously Presented) The balloon of claim 8 comprising approximately 3% by weight nano-ceramic fibers.

10. (Cancelled) ~~The balloon of claim 7 wherein said polymer is nylon 12 or PET.~~

11. (Previously Presented) The balloon of claim 7 wherein said nano-ceramic fibers are alumina fibers.

12. (Cancelled) ~~The balloon of claim 3 wherein said nano composite is a nano clay.~~

13. (Cancelled) ~~The balloon catheter of claim 12 wherein said balloon comprises between 99.75 and 90.00% by weight polymer and between 0.025 and 10.00% by weight nano clay.~~

14. (Cancelled) ~~The balloon of claim 13 comprising approximately 3% by weight nano clay.~~

15. (Cancelled) ~~The balloon of claim 12 wherein said polymer is nylon 12 or PET.~~

16. (Cancelled) ~~The balloon of claim 12 wherein wetted platelets of nano clay are dispersed in the matrix and are oriented whereby the platelets can slide with~~

~~respect to one another to provide more elastic behavior in a plane parallel to the platelets and a more stiff behavior in an orthogonal direction of the platelets.~~

17. (Previously Presented) The balloon of claim 1 being formed by extruding a polymer and nano composite matrix into a thin wall tube that is subsequently heat stretched in a controlled manner to further reduce a wall thickness to of the tube to desired dimensions, followed by blow molding the stretched tube into a desired balloon shape.

18. (Previously Presented) The balloon of claim 17 wherein the stretched tube is formed with the nano-tubes oriented primarily along the axis of the balloon.

~~19. (Cancelled) The balloon of claim 17 wherein the polymer and nano composite matrix is rolled and stretched to orient the nano-tubes in one direction and then the tubes are formed such that the nano-tubes are originally oriented tangentially in the wall of the tube to enhance the resistance of the balloon tangentially.~~

20. (Currently Amended) The balloon of claim 1 being formed by cutting a polymer and nano composite sheets of specific thickness, fusing the sheets into tubes whose wall thickness is considerably greater than necessary for making the balloon followed by drawing down the tubes formed by the laminated sheets to desired dimensions to form a thermoplastic tube and forming the balloon by heating a the thermoplastic tube made from the laminated sheets under internal pressure within blow molding.

21. (Currently Amended) The balloon of claim 20 wherein the stretched tubes are formed with the nano-tubes or nano ceramic fibers oriented primarily along the axis of the balloon.

~~22. (Cancelled) The balloon of claim 20 wherein the polymer and nano composite matrix is rolled and stretched to orient the nano-tubes in one direction and then the tubes are formed such that the nano-tubes are originally oriented~~

~~tangentially in the wall of the tube to enhance the resistance of the balloon tangentially.~~

23. (Previously Presented) The balloon of claim 1 wherein the polymer and nano composite matrix is formed by dispersing the nano composite to a monomer matrix followed by polymerization of the monomer and nano composite matrix.

24. (Previously Presented) The balloon of claim 1 wherein the polymer and nano composite matrix is formed by dispersing the selected nano composite in the matrix during melt compounding of the matrix.

25. (Currently Amended) A balloon for use in a balloon catheter including a tubing, said balloon having a high strength for resisting bursting during over inflation, said balloon comprising a blended nano-composite reinforced polymer matrix ~~including~~ consisting essentially of a polymer selected from nylon 12 or PET and a nano composite selected from carbon nano-tubes, ~~a nano-clay~~ or nano-ceramic fibers, said polymer and nano composite matrix ~~having been~~ being formed by dispersing the selected nano composite in the matrix with a ~~small amount of~~ lubricant during ~~melt compounding~~ blending of the matrix followed by extruding a tube and then blow molding the balloon in the tube.